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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/069,299	10/19/2001	Louis F. Gatti	Dunlop Tire - Gatti	2027

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EXAMINER

SHOSHO, CALLIE E

ART UNIT	PAPER NUMBER
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1714

DATE MAILED: 08/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/069,299

Applicant(s)

GATTI, LOUIS F.

Examiner

Callie E. Shosho

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10/19/01.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7,9,10,14,16 and 17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-7,9,10,14,16 and 17 is/are rejected.
- 7) ☒ Claim(s) 2 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### **Claim Rejections - 35 USC § 103**

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
2. Claims 1, 3, and 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smigerski et al. (U.S. 4,788,231).

Smigerski et al. disclose a tire tread comprising 100 parts diene based elastomer and filler comprising 40-250 phr carbon black and 0.1-6.5 phr zinc sulfate (col.2, lines 38-51, col.3, lines 26-56 and 61-62, and col.5, line 32). Based on the amount of carbon black and zinc sulfate, it is calculated that the amount of zinc sulfate in the filler is approximately 0.04% (0.1/250) to 16 wt.% (6.5/40). Although there is no disclosure of the amount of zinc sulfate in terms of the volume percent of the filler, given that Smigerski et al. disclose use of small amount of zinc

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sulfate and large amount of carbon black, it is clear that the filler would intrinsically possess, absent evidence to the contrary, less than 30 volume% zinc sulfate as presently claimed.

The only deficiency of Smigerski et al. is that Smigerski et al. disclose the use of 6.5 phr zinc sulfate, while the present claims require 7 phr zinc sulfate.

It is apparent, however, that the instantly claimed amount of zinc sulfate and that taught by Smigerski et al. are so close to each other that the fact pattern is similar to the one in In re Woodruff, 919 F.2d 1575, USPQ2d 1934 (Fed. Cir. 1990) or Titanium Metals Corp. of America v. Banner, 778 F.2d 775, 227 USPQ 773 (Fed.Cir. 1985) where despite a "slight" difference in the ranges the court held that such a difference did not "render the claims patentable" or, alternatively, that "a prima facie case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough so that one skilled in the art would have expected them to have the same properties".

In light of the case law cited above and given that there is only a "slight" difference between the amount of zinc sulfate disclosed by Smigerski et al. and the amount disclosed in the present claims and further given the fact that no criticality is disclosed in the present invention with respect to the amount of zinc sulfate, it therefore would have been obvious to one of ordinary skill in the art that the amount of zinc sulfate disclosed in the present claims is but an obvious variant of the amounts disclosed in Smigerski et al., and thereby one of ordinary skill in the art would have arrived at the claimed invention.

3. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Smigerski et al. as applied to claims 1, 3, and 5-6 above, and further in view of Shimizu (U.S. 5,508,333).

The difference between Smigerski et al. and the present claimed invention is the requirement in the claims of silica.

Shimizu, which is drawn to tire tread composition, disclose the use of silica filler in order to improve the fracture properties, wet grip, and rolling resistance of the tire tread (col.6, lines 56-59).

In light of the motivation for using silica disclosed by Shimizu as described above, it therefore would have been obvious to one of ordinary skill in the art to use silica in the tire tread of Smigerski et al. in order to improve fracture properties, wet grip, and rolling resistance of the tire tread, and thereby arrive at the claimed invention.

4. Claims 1 and 3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu (U.S. 5,508,333) in view of Smigerski et al. (U.S. 4,883,829).

Shimizu discloses a tire tread comprising 100 parts diene based elastomer and 10-100 parts filler wherein the filler comprises 0.1-90 parts carbon black and 9.9-99.9 parts white filler such as barium sulfate or mixtures of barium sulfate and silica (col.16, lines 41-col.17, line 23 and col.17, line 28). Based on the amount of filler and barium sulfate, it is calculated that the amount of barium sulfate in the filler is approximately 9.9-99.9 wt.%. Although there is no disclosure of the amount of barium sulfate in terms of the volume percent of the filler, given that Shimizu discloses the use of small amount of barium sulfate, i.e. 9.9 parts based on 100 parts filler, it is clear that the filler would intrinsically possess, absent evidence to the contrary, less than 30 volume% barium sulfate as presently claimed.

The difference between Shimizu and the present claimed invention is the requirement in the claims of zinc sulfate.

Smigerski et al., which is drawn to tire treads, disclose the equivalence and interchangeability of zinc sulfate with barium sulfate wherein these metal salts are used to prevent particle segregation during processing (col.1, lines 47-62, col.2, lines 20-23, col.3, line 37, and col.4, line 61).

In light of the disclosure of Smigerski et al. of the equivalence and interchangeability of zinc sulfate, as presently claimed, with barium sulfate, as disclosed by Shimizu, it therefore would have been obvious to one of ordinary skill in the art to use zinc sulfate in the tire tread of Shimizu in order to ensure effective processing, and thereby arrive at the claimed invention.

5. Claims 7 and 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu (U.S. 5,508,333) in view of Craven (U.S. 3,878,147).

Shimizu discloses a tire tread comprising 100 parts diene based elastomer and 10-100 parts filler wherein the filler comprises 0.1-90 parts carbon black and 9.9-99.9 parts white filler such as barium sulfate or mixtures of barium sulfate and silica (col.16, lines 41-col.17, line 23 and col.17, line 28). Based on the amount of filler and barium sulfate, it is calculated that the amount of barium sulfate in the filler is approximately 9.9-99.9 wt.%. Although there is no disclosure of the amount of barium sulfate in terms of the volume percent of the filler, given that Shimizu discloses the use of small amount of barium sulfate, i.e. 9.9 -99.9 parts based on 100 parts filler, it is clear that the filler would intrinsically possess, absent evidence to the contrary, less than 30 volume% barium sulfate as presently claimed.

The difference between Shimizu and the present claimed invention is the requirement in the claims of the particle size of barium sulfate.

Craven, which is drawn to tire treads, disclose the use of particles such as barium sulfate having particle size of 0.2-105 microns in order to provide the necessary level of friction of the tire (col.2, lines 8, 13, and 16-18).

In light of the motivation for using barium sulfate with particular particle size disclosed by Craven as described above, it therefore would have been obvious to one of ordinary skill in the art to use such barium sulfate in the tire tread of Shimizu in order to control the level of friction, and thereby arrive at the claimed invention.

6. Claims 14 and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Young (U.S. 5,063,268) in view of Kuan (U.S. 4,237,173).

Young discloses a tire tread comprising 25-40% diene based elastomer, 20-50% carbon black, and 3-15% titanium dioxide and silica (col.6, line 59, col.7, line 35, col.7, line 67-col.8, line 1, and col.8, lines 40-49). It is calculated from present claim 14 that the presently claimed tire tread comprises 39-77% diene based elastomer (100/260-100/130) and 23-61% filler or at least 8% titanium dioxide. Thus, the amounts disclosed by Young clearly overlap those presently claimed.

The difference between Young et al. and the present claimed invention is the requirement in the claims of the particle size of titanium dioxide.

Kuan, which is drawn to tire composition, disclose that controlling the particle of titanium dioxide to 0.1-0.5 microns ensures ease of dispersion (col.1, lines 44-47 and col.2, lines 1-5).

In light of the motivation for using titanium dioxide with particular size disclosed by Kuan as described above, it therefore would have been obvious to one of ordinary skill in the art to use such titanium dioxide in the tire tread of Young in order to ensure that the titanium dioxide is properly dispersed throughout the composition, and thereby arrive at the claimed invention.

#### **Response to Arguments**

7. The present application is 371 of PCT/US99/08838. Applicants have set forth the same arguments regarding above rejections as set forth in PCT/US99/08838. Examiner's response to these arguments is set forth below.

Applicants argue that:

- (a) there is no teaching in Smigerski et al. to increase the amount of zinc sulfate from 6.5 phr to 7 phr.
- (b) Shimizu discloses the use of filler such as white carbon not white filler.
- (c) Shimizu discloses the use of many different filler materials of which barium sulfate is but one.
- (d) No disclosure in Craven of improving the viscoelastic properties of the tire tread.
- (e) There is no motivation to combine Young with Kuan given that Kuan is not a relevant reference against the present claims.



With respect to argument (a), it is noted that it is not the examiner's position that one of ordinary skill in the art must modify Smigerski et al.'s amount of zinc sulfate, but rather than the amount of zinc sulfate disclosed by Smigerski et al., i.e. 6.5 phr, is so close to the amount of zinc sulfate presently claimed, i.e. 7 phr, it would have been obvious to one of ordinary skill in the art, absent evidence to the contrary, that zinc sulfate in an amount disclosed by Smigerski et al. would function the same in a tire tread as zinc sulfate in an amount as presently claimed and that the amount of zinc sulfate presently claimed is but an obvious variant of that disclosed by Smigerski et al.

With respect to argument (b), it is noted that regardless of what Shimizu calls the filler, i.e. white carbon, the fact remains that among the white carbon fillers disclosed by Shimizu is barium sulfate (col.16, line 55). Further, col.6, lines 60-61 of Shimizu discloses that the tire teed composition comprises 10-100 phr filler, col.17, lines 7-8 discloses that the filler comprises carbon black and white carbon, and col.17, lines 18-21 discloses that the 10-100 phr filler comprises 0.1-90 parts carbon black and 0.0-99.9 parts white carbon, which includes barium sulfate.

Further, it is the examiner's position that given the disclosure of Smigerski et al. of the equivalence and interchangeability of zinc sulfate with barium sulfate, i.e. one of ordinary skill in the art would expect zinc sulfate to function the same as barium sulfate, given that Smigerski et al. and Shimizu are both drawn to tire treads, and absent evidence to the contrary, it would have been obvious to one of ordinary skill in the art to use zinc sulfate in place of barium sulfate in Shimizu, and thereby arrive at the claimed invention.

With respect to argument (c), it is noted that given that the white carbon fillers disclosed by Shimizu include barium sulfate, given that Shimizu disclose that the white carbon filler is used in an amount of in an amount of 9.9-99.9 parts which clearly overlaps the amount presently claimed, it would have been obvious to one of ordinary skill in the art, absent evidence to the contrary, to choose barium sulfate as the filler in Shimizu, and thereby arrive at the claimed invention.

With respect to argument (d), although the motivation for using barium sulfate with specific particle size disclosed by Craven is different than that of the present invention, it is noted that obviousness under 103 is not negated because the motivation to arrive at the claimed invention as disclosed by the prior art does not agree with appellant's motivation. *In re Dillon*, 16 USPQ2d 1897 (Fed. Cir. 1990), *In re Tomlinson*, 150 USPQ 623 (CCPA 1996). Further, given that Craven discloses barium sulfate with particle size that overlaps that presently claimed, it therefore would have been obvious to one of ordinary skill in the art to infer that the barium sulfate would intrinsically modify the viscoelastic properties of Shimizu's elastomer.

With respect to argument (e), applicants argue that Kuan is drawn to tire sidewall while present claims are drawn to tire tread and that the motivation for using titanium dioxide in Kuan, i.e. high brightness, is not relevant to the present invention.

However, it is noted that Kuan is only used to teach the conventional particle size of titanium dioxide. Further, it is noted that "high brightness" is only one motivation disclosed by

Kuan for controlling particle size of titanium dioxide. Kuan also discloses that controlled particle size distribution of titanium dioxide results in ease of dispersion which is important in tire tread composition given that if the dispersion of the filler in the elastomer effects the physical and chemical properties of the tread.

Thus, Kuan remains a relevant reference against the present claims, given that it disclosed that controlling the particle size results in ease of dispersion which is especially relevant to the invention at hand.

**Allowable Subject Matter**

8. Claim 2 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 2 would be allowable if rewritten in independent form as described above given that there is no disclosure or suggestion in the "closest" prior, namely, Smigerski et al. (U.S. 4,788,231) of the particle size of the zinc sulfate.

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Senyek et al. (U.S. 5,310,815) disclose tire tread comprising diene elastomer and filler comprising titanium dioxide, carbon black, and silica, however, there is no disclosure of the amount of titanium dioxide used or any disclosure of the particle size of titanium dioxide.

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Obrecht et al. (U.S. 6,127,488) disclose tire tread comprising diene elastomer, titanium dioxide, and barium sulfate, however, there is no disclosure of the particle size of either the titanium dioxide or barium sulfate and no disclosure of the amount of either titanium dioxide or barium sulfate based on volume percent filler.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 703-305-0208. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 703-306-2777. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



Callie E. Shosho  
Primary Examiner  
Art Unit 1714

CS  
August 1, 2003